4th Biannual Western Modeling Workshop

September 6-8, 2017
NCAR Center Green Conference Center
Boulder, CO

Advance in-person and remote access registration required (url:)
Adobe Connect (url:)
Conference line: xxx.xxx.xxxx; xxxx#

Workshop Goals:

- Identify data gaps and application/research needs to address unique air quality management issues in the western U.S.;
- Increase collaboration between Local, Tribal and State Air Agencies, EPA, and other Federal Agencies in developing improved data sets and modeling tools to address these needs; and.
- Evaluate the ACE research portfolio to enhance research that addresses the western air quality management priority needs; identify research that is currently not covered and look for additional opportunities to meet those needs.

Day One Wednesday, September 6, 2017	
Time (MDT)	**Sessions**
8:00 am	**Registration & Breakfast (on your own)**
9:00	**Welcome and Introductory Remarks** • Tom Moore (WESTAR/WRAP) • Gail Tonnesen (EPA Region 8) • Alan Vette (ORD/ACE) • ? (US EPA/OAQPS) • ? (NCAR)

9:30	**Plenary Session I: Global Model Evaluation, Development and New Source Attribution Tools** • Need for well evaluated BC data from global models for regional/urban scale air quality planning (State or local agency representative) • Current state of the art for global scale models (Fiore/Lin) • EPA Hemispheric CMAQ model (Hogrefe/Mathur) Discussion Topics/Session Outcomes: • Need additional extensive evaluation to assess global models ability to accurately represent episode specific transport contributions to O3 and PM2.5 for O3 NAAQS and regional haze planning. • Continued development of tools that translate global model output to regional model initial/boundary inputs; • Need additional source attribution tools or model sensitivity simulations to identify source contributions to international transport and; • Develop a plan to identify resources and collaborations to fill these needs.
11:45 am	**Lunch (on your own)**
1:00 pm	**Plenary Session II: Modeling Studies to Evaluate Regional Haze for 2028 Milestone Planning** • Overview of Western Regional Haze planning needs and emission inventories (Moore) • Methods used to Estimate Natural Haze and Need for Updates (Copeland?) • EPA First Look 2028 Regional Haze Modeling (Chris Misenis, EPA OAQPS) • CAMx Visibility modeling performance and source apportionment estimates of natural, international and anthropogenic haze (Ralph Morris, Ramboll Environ) • New metric and natural conditions (• States concerns and needs for modeling haze for planning (?) Session outcomes: • Better understand domestic anthropogenic contributions to haze to focus future State regulatory actions • Better understanding of uncertainty in model estimates and poor model performance for regional haze evaluation and planning • Better understanding of uncertainty and model skill for natural & anthropogenic haze estimates • Improved emissions estimates for northern hemisphere anthropogenic emissions, fires, ammonia, and biogenic and geogenic sources • Better understanding of ORD modeling & monitoring for regional haze??
3:00	**Break**

3:15	**Plenary Session III: Modeling Studies to Evaluate Background Ozone for SIPs** • Evaluating WRF Performance in Complex Terrain (Wayne Angevine?) • Planning requirements and modeling for transport SIPs - Norm Possiel (EPA OAQPS) • Model evaluation for O3 in the intermountain west during FRAPPE 2014 (Tonnesen or Pfister) • Source-receptor studies for SIPs (western state or local #1) • WESTAR-WRAP-API Background Ozone Scientific Assessment (Moore / someone else) • Southern New Mexico Ozone Modeling Study and How it will be used for their proposed 179B SIP • Zero Out Global Model Run of Anthropogenic Global, Mexico, and Canadian Emissions Discussion/Session outcomes: • Better understanding of uncertainty in model estimates and poor model performance for evaluation and planning related to background O_3 • Better understanding by EPA OAQPS and ORD of limitations to national approach
5:00	**WRAP-up and adjourn for the day**
6:30	**No-host dinner**

Day Two Thursday, September 7, 2017		
Time (MDT)	**Sessions**	
8:00 am	**Welcome and Agenda Review**	
	Track 1	Track 2
8:15	**Using monitor data to evaluate and develop emission and air quality modeling systems** • Model performance for VOC and O3 in winter O3 areas (Region 8) • Understanding emissions, chemical, meteorological, and terrain contribution to winter time elevated PM2.5 in Salt Lake City (C. Pennell, Utah) • Model performance for winter PM2.5 in CA and UT (James Kelly, EPA OAQPS) • Uncertainty in wood heating emissions (Region 10) • Maybe an overview presentation of the NEI2014 (since it should be available in the fall of 2017) • WOE Modeling Analysis excluding poor peformaing modeling days and excluding exceptional events (Denver Oozne SIP WOE-ENVIRON) <u>Session outcomes</u>: • Identify needs for future ambient monitoring for O3, haze and oil and gas • Identify priorities for field studies and expanded routine monitoring • Discuss improved meteorological model performance for winter cold air pool modeling; • Agree upon next steps for improving emissions inventories for wood stoves; • Address uncertainty in oil and gas VOC and NOx emissions and reconciliation of top-down vs. bottom-up emissions estimates; and • Improve model performance for winter oxidants, nitric acid and ammonium nitrate formation, including nighttime and heterogeneous pathways.	**Next Generation Emission Measurements for Fugitive Sources** (presentations) • Eben Thoma (ORD) • State study #1 • State study #2 • Other study

10:00	**Break**	
10:15	**Fire Research and Air Management Needs** • WRAP fire/smoke subcommittee priorities (chairperson of the committee) • EPA's recent and planned projects related to wildland fire (Kirk Baker, EPA) • Recent NOAA Fire research highlights from and plans for the next phase of FIREX (C. Warneke) • Other presenters Discussion/Session outcomes: • Exchange of information and improvedunderstanding of national initiatives • Discussions of applied uncertainties in emissions and model estimates and poor model performance for evaluation and planning related to background O_3, Exceptional Events, and Regional Haze planning • Assemble volunteer team to draft research plan to develop more reliable estimates of fire contributions to O3 and haze	**Improved Estimates of Ammonia Emissions and Deposition** • Currently available data and plans for future research (John Walker, EPA ORD) • Model estimates of N deposition in the western U.S. (Donna Schwede, EPA ORD) • NPS studies (Mike Barna or other) • Diurnal measurements (Jeff Collett) • NH3 EIs (?) Discussion/Session outcomes: • Need for measurements and modeling of NH_3 and NH_4 in high population areas and in remote areas; • NPS/CSU monitoring studies that highlighting challenges in interpreting ambient NH_3 measurements in remote areas; • Continuous measurements of NH3 and NH4 to evaluate models and for comparison to long term average passive samplers.
12:30 pm	**Lunch (on your own)**	
1:30 to 5:00	**Field trips departing from / returning to NCAR Center Green** • *RMNP – NPS may organize and host, alternate is INSTAAR on Niwot Ridge* • *Oil & Gas Production – could CO APCD organize a tour of regulatory activities?*	
Dinner and evening activities on your own		
Day Three Friday, September 8, 2017		
Time (MDT)	**Sessions**	
8:00 am	**Welcome and Agenda Review**	

8:15	•	**Plenary Session IV: Exceptional Events and Long Range Transport)** Stratospheric Intrusion International Transport of Ozone Fugitive Dust CABOTS field study in CA FAST-LVOS study in Las Vegas
10:15	**Break**	
10:30	**Plenary Session V: Model Performance Evaluation (MPE) Tools** • Historic model performance results for haze across the West (Tonnesen) • Improving and automating MPE Tools Kristen Foley (EPA ORD) • Intermountain West Data Warehouse / Western Air Quality Study (Moore or other) • NW-AirQuest/AirPact (?) <u>Session outcomes:</u> • Examples of inadequate model performance evaluation; • Recommendations for improved MPE and; • Progress on developing new performance evaluation tools.	
11:45	**Wrap Up and Closing Remarks**	
12:00 pm	**Adjourn Workshop**	